

Appl. No. 10/731,600
Amendment dated July 31, 2007
Reply to Office Action of March 2, 2007

Remarks

Reconsideration of this application is respectfully requested.

Claims 12 through 18 are pending in this application with claims 1-11 and 19-21 having been canceled. Entry of these amendments is requested as it is believed they put the application in condition for allowance or in better condition for appeal.

Claims 1-21 have been rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement, in that the "claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention."

More specifically, according to the Examiner:

"Amended claims 1, 12, and 19, as well as their dependent claims, require a sedimentation rate of no more than about 0.005% per week at 70°C for at least 12 weeks. However, the specification (page 7 lines 18-20, page 10 lines 7-10, and Tables 1-3), as originally filed, places a lower bound of about 0.001% per week on the sedimentation rate. The amended claims therefore encompass a broader range (a value less than about 0.001% per week sedimentation rate for at least 12 weeks, for example), than is originally described by the specification. Similarly, the specification does not describe a sedimentation rate of no more than 0.005% for an infinite period extending beyond 12 weeks, as recited in the amended claim. Therefore, the limitation is not considered to

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have patentable weight. The examiner recommends that the claims be amended to incorporate the lower bound of the sedimentation rate range supported in the specification, and limit the duration of the low sedimentation rate to 12 weeks.

Additionally, while the specification provides support for the sedimentation rate of the sulfonate within a lubricating oil composition, claims 1 and 19 are drawn, not to a lubricating oil composition, but rather to a different invention, an additive mixture."

Claims 1-11 and 19-21 have been canceled. With regard to claims 12-18, this rejection is respectfully traversed.

As noted above, it is the Examiner's position that a lower limit of 0.001% per week for twelve weeks should be placed on the sedimentation rate. This is clearly unreasonable. Consider the infringer who does exactly what the Applicants have taught and, through skill or good luck, should manage to produce a material having a sedimentation rate of, say, 0.0009%. Does the Examiner feel that such an infringer should be found to be operating outside the scope of the claims?

The Examiner has cited page 7 lines 18-20, page 10 lines 7-10, and Tables 1-3 of the specification in support of his position. It is submitted that the cited language fails to do so. Page 7, lines 18-20, discloses:

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"In examples 1 and 5, no friction modifiers were employed. It can be seen that use of the amorphous overbased calcium sulfonate Calcinat[™] C400CLR (Examples 5-8) reduces sedimentation dramatically."

There is nothing in either of these two sentences that even hints about a lower limit of 0.001% per week for the sedimentation rate.

Page 10, lines 7-10 discloses:

"As can be seen from the results the amorphous overbased calcium sulfonate Calcinat[™] C400CLR (Examples 13-16) was characterized by very low sedimentation percentages (typically about 0.001 to about 0.005) as opposed to the sedimentation percentages (0.11 to 0.50) for the Calcinat[™] C300CS (Examples 9-12)."

Again, this disclosure simply summarizes the results of Examples 13-16, which were all generated at a single level of 10% Calcinat[™] C400CLR. Use at only this level is not required in either the specification or claims of the present application. It is submitted that those skilled in the art would assume that levels greater or less than 10% would provide different, possibly lower, results for the sedimentation rate. This argument applies equally well, of course, to the Examiner's citation of Tables 1-3 of the Specification.

Further, it appears to be the Examiner's position that the duration of the sedimentation rate determination should be limited to twelve weeks, rather than "at least twelve weeks" as currently claimed. This is a non-issue. If an infringer copies the teachings of the present invention and, as a result, obtains sedimentation rates that are no more than about 0.005% per

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week at 70°C for 12 weeks, he has infringed the claims. If he continues to get these beneficial results for 15 weeks, or 150 weeks, or 1500 weeks, or whatever, it is of no consequence to the fact of infringement, which either occurs or does not occur at the end of twelve weeks. Once he has satisfied the criteria for infringement of the claims, the deed has been done, and his continued infringement, while pertinent to the issue of damages, does not undo the damage.

Accordingly, it is requested that the rejection of claims 1-21 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement, be withdrawn.

Claims 1-11 and 19-20 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-11 and 19-20 have been canceled. Accordingly, it is requested that the rejection of claims 1-11 and 19-20 under 35 U.S.C. 112, second paragraph, be withdrawn.

The Examiner has set forth two sets of rejections. The first set of rejections applies, according to the Examiner, if the limitations regarding sedimentation rate are not given weight. The second set of rejections apply if claims 1, 12, and 19 are amended to limit the sedimentation rate to between 0.001 and 0.005% per week at 70°C for at least 12 weeks. It is unclear to the Applicants from this what it is they need to do to be responsive under these conditions. As noted above, they have not limited the sedimentation rate to between 0.001 and 0.005% per week at 70°C for at least 12 weeks. On the other hand, it is their position that

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the limitations regarding sedimentation rate *should* be given weight. It thus appears to be their only alternative to respond to both sets of rejections simultaneously.

Claims 1-4, 8, and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Papay et al. (U.S. Patent No. 5,652,201) in view of Papke et al. (U.S. Patent No. 4,995,993).

Claims 1-4 and 8 have been canceled.

Papay et al. disclose oleaginous compositions and additive concentrates therefor having enhanced performance characteristics that comprise

a) at least one oil-soluble overbased alkali or alkaline earth metal-containing detergent having a TBN of at least 200; and

b) one or more oil-soluble boron-free additive compositions formed by heating

(i) at least one boron-free oil-soluble ashless dispersant containing basic nitrogen and/or at least one hydroxyl group, with

(ii) at least one inorganic phosphorus acid such that a liquid boron-free phosphorus-containing composition is formed.

Papke et al. disclose a method of preparing an amorphous metal sulfonate detergent for lubricants. The sulfonate detergent is prepared by:

(a) mixing, stirring and heating a diluted metal sulfonate with Ca(OH)_2 ;

(b) adding to the stirred, heated sulfonate mixture a sufficient amount of CO_2 to heat with all the Ca(OH)_2 added;

(c) adding a zeolite to the mixture partway through the addition of CO₂ to remove a certain percentage of the total water in said mixture;

(d) filtering the water-removed mixture to separate an amorphous metal sulfonate product; and

(e) recovering the amorphous overbased metal sulfonate product.

Applicants have found that use of amorphous overbased calcium sulfonate as a component in an additive mixture for lubricant oils, in conjunction with the friction modifiers set forth in claim 12, provides superior results in formulating a lubricant composition having exceptionally low sedimentation rates. Typically, as demonstrated by Applicants' examples (see, e.g., Table 3 in the specification), the sedimentation resulting from the use of the amorphous overbased calcium sulfonate was no more than about 2% of the sedimentation resulting from the use of crystalline calcium sulfonate.

Papay et al. does not disclose or suggest such an advantage to the use of amorphous alkaline earth metal sulfonate and the degree to which sedimentation is thereby reduced. Accordingly, Papay et al. does not render the aforementioned claims obvious.

Papke et al. has been cited for disclosing a preferred amorphous overbased calcium sulfonate with a particle size of 100 to 150Å (10-15 nm) and a crystalline overbased calcium sulfonate with a particle size of 400 to 600Å (40-60 nm).

Claim 12 recites an amorphous overbased alkaline earth metal sulfonate in an amount sufficient to provide a sedimentation rate of no more than about 0.005% per week at 70°C for at least 12 weeks. Papke et al. does not recognize the sedimentation-reducing advantages

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provided by the use of amorphous overbased alkaline earth metal sulfonate, nor does Papke et al. disclose or suggest the use of amorphous overbased calcium sulfonates in an amount sufficient to reduce sedimentation rates to no more than about 0.005% per week at 70°C for at least 12 weeks. Accordingly, even if the teachings of Papke et al. and Papay et al. were to be combined, claim 12 and all claims depending therefrom would not be rendered obvious.

Accordingly, it is requested that the rejection of claims 1-4, 8, and 12-15 under 35 U.S.C. 103(a) as being unpatentable over Papay et al. in view of Papke et al. be withdrawn.

Claim 5 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Papay in view of Papke as applied to claims 1-4, 8, and 12-15 above, and further in view of Watts.

Claim 5 has been canceled. Accordingly, it is requested that the rejection of claim 5 under 35 U.S.C. 103(a) as being unpatentable over Papay in view of Papke and further in view of Watts be withdrawn.

Claim 6 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Papay in view of Papke as applied to claims 1-4, 8, and 12-15 above, and further in view of Denis.

Claim 6 has been canceled. Accordingly, it is requested that the rejection of claim 6 under 35 U.S.C. 103(a) as being unpatentable over Papay in view of Papke and further in view of Denis be withdrawn.

Claim 7 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Papay in view of Papke as applied to claims 1-4 and 13-15 above, and further in view of Ramey et al. (U.S. PG Pub. No. 2004/0063589).

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Claim 7 has been canceled. Accordingly, it is requested that the rejection of claim 7 under 35 U.S.C. 103(a) as being unpatentable over Papay in view of Papke and further in view of Ramey et al. be withdrawn.

Claim 19 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Papay in view of Papke as applied to claims 1-4, 8, and 12-15 above, and further in view of Chladek (U.S. Patent No. 3,754,684).

Claim 19 has been canceled. Accordingly, it is requested that the rejection of claim 19 under 35 U.S.C. 103(a) as being unpatentable over Papay in view of Papke and further in view of Chladek be withdrawn.

Claims 9, 16, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Papay in view of Papke as applied to claims 1-4, 8, and 12-15 above, and further in view of Hartley et al. (U.S. PG Pub. No. 2004/0180798).

Claims 9 and 21 have been canceled.

Hartley et al. discloses a lubricating oil composition which exhibits improved fuel economy and fuel economy retention which contains a mono-, di- or triester of a tertiary hydroxyl amine and a fatty acid as a friction modifying fuel economy additive. Hartley et al. does not disclose or suggest the use of an amorphous overbased alkaline earth metal sulfonate as a component in an additive for lubricant oils, much less in an amount sufficient to reduce sedimentation rates to no more than about 0.005% per week at 70°C for at least 12 weeks.

Thus, even if Hartley et al. were to be combined with Papay et al. claims 16 would not be rendered obvious.

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Accordingly, it is requested that the rejection of claim 16 under 35 U.S.C. 103(a) as being unpatentable over Papay in view of Papke and further in view of Hartley et al. be withdrawn.

Claim 20 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Papay in view of Papke and Chladek as applied to claim 19 above, and further in view of Hartley.

Claim 20 has been canceled. Accordingly, it is requested that the rejection of claim 20 under 35 U.S.C. 103(a) as being unpatentable over Papay in view of Papke and Chladek and further in view of Hartley be withdrawn.

Claims 10-11 and 17-18 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Papay in view of Papke as applied to claims 2-4 and 13-14 above, and further in view of Calhoun (U.S. Pat. No. 3,198,737).

Claims 10 and 11 have been canceled.

Calhoun is directed to lubricating compositions and additives, and is cited for disclosing a friction modifier comprising a diethylene glycol dioleate, a reaction product of diethylene glycol and methyl oleate, as recited in claim 18; and a friction modifier comprising a thiodiglycol (2,2'-thioethanol) dioleate, a reaction product of thiodiglycol with methyl oleate, as recited in claim 17.

These claims depend from independent claim 12, which is submitted to be allowable for the reasons stated above. Neither Calhoun nor Papay et al., individually or in combination, teaches the use of an amorphous overbased alkaline earth metal sulfonate as a


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component in an additive for lubricant oils, much less in an amount sufficient to reduce sedimentation rates to no more than about 0.005% per week at 70°C for at least 12 weeks.

Accordingly, it is requested that the rejection of claims 10-11 and 17-18 under 35 U.S.C. 103(a) as being unpatentable over Papay in view of Papke as applied to claims 2-4 and 13-14 above, and further in view of Calhoun be withdrawn.

In view of the foregoing, it is submitted that this application is in condition for allowance and an early Office Action to that end is earnestly solicited.

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